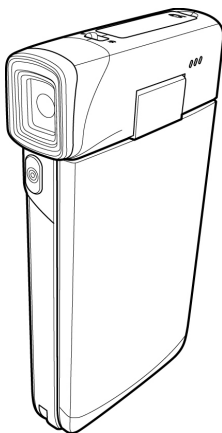


HD-DV Camcorder



User's Manual



Table of Contents

<i>Preface</i>	<i>v</i>
<i>About this manual.....</i>	<i>v</i>
<i>Copyright.....</i>	<i>v</i>
<i>Precautions</i>	<i>vi</i>
<i>Before You Start</i>	<i>viii</i>
1 Introducing the camera	1
<i>1.1 System requirements.....</i>	<i>1</i>
<i>1.2 Features</i>	<i>1</i>
<i>1.3 Unpacking the video camera.....</i>	<i>2</i>
<i>1.4 About the camera</i>	<i>3</i>
1.4.1 Front view	3
1.4.2 Top view	3
1.4.3 Bottom view	4
1.4.4 Right view.....	4
1.4.5 Back view	5
1.4.6 LCD Panel.....	5
1.4.7 Adjusting the LCD display.....	6
1.4.8 About the LEDs.....	9
2 Getting started.....	10
<i>2.1 Inserting an SD card.....</i>	<i>10</i>
<i>2.2 Inserting the batteries.....</i>	<i>11</i>
<i>2.3 Charging the battery.....</i>	<i>12</i>
<i>2.4 Turning on the video camera</i>	<i>12</i>

2.5	<i>Changing modes</i>	13
2.6	<i>Before you start</i>	13
2.6.1	Setting the date and time	13
2.6.2	Setting the language	14
2.6.3	Setting the beep	15
2.7	<i>Shoot/Playback video</i>	16
2.7.1	Shooting a video clip	16
2.7.2	Playing the video clip.....	18
2.8	<i>Taking/viewing pictures</i>	19
2.8.1	Taking a still picture.....	19
2.8.2	Viewing images.....	20
2.9	<i>Connecting to a computer</i>	21
2.10	<i>Connecting to a standard TV</i>	21
2.11	<i>Connecting to an HDTV</i>	22
3	<i>Using the camera</i>	23
3.1	<i>Movie mode</i>	23
3.1.1	Movie mode.....	23
3.1.2	Using the macro function	24
3.1.3	Using the zoom function.....	25
3.1.4	Using the LED light.....	25
3.1.5	Quick access controls	25
3.2	<i>Photo mode</i>	26
3.2.1	Photo mode icons.....	26
3.2.2	Using the macro function	27
3.2.3	Using the zoom function.....	27

3.2.4	Using the LED light	27
3.2.5	Quick access controls	27
3.3	<i>Movie Playback mode</i>	28
3.3.1	Movie Playback mode icons	28
3.4	<i>Photo Playback mode</i>	30
3.4.1	Photo Playback mode icons	30
3.5	<i>Thumbnail mode</i>	31
3.6	<i>USB mode</i>	31
4	Using the menus	32
4.1	<i>Movie menu</i>	32
4.1.1.	White balance	32
4.1.2.	Video resolution	33
4.1.3.	Color effect	34
4.1.4.	Night mode	35
4.1.5.	Video quality	36
4.2	<i>Movie playback menu</i>	37
4.2.1	Delete	37
4.2.2	Protect	39
4.2.3	Autoplay	40
4.2.4	Volume	41
4.3	<i>Photo menu</i>	42
4.3.1	White balance	42
4.3.2	Resolution	43
4.3.3	Color effect	44
4.3.4	Night mode	45

4.3.5	Selftimer	46
4.3.6	Photo quality	47
4.4	<i>Photo playback menu</i>	48
4.4.1	Delete.....	48
4.4.2	Protect	50
4.4.3	Slide show.....	51
4.5	<i>System menu</i>	52
4.5.1	Setting the beep	52
4.5.2	Date/time	52
4.5.3	Auto power off.....	52
4.5.4	TV standard	53
4.5.5	Format	54
4.5.6	Default.....	55
4.5.7	Language	55
4.5.8	Frequency	56
Appendix		57
<i>Specifications</i>		<i>57</i>
<i>Troubleshooting</i>		<i>60</i>

Preface

Congratulations on your purchase of this advanced video camera. Ensure that you read this manual carefully and keep it in a safe place for future reference.

About this manual

Every effort has been made to ensure that the contents of this manual are correct and up to date. However, no guarantee is made regarding the accuracy of the contents. If the contents of this manual do not tally with the camera, please take the camera as a criterion, and our company reserves the right to change the contents or technical rules without notice in advance. Also, the manufacturer reserves the right to change the technical specification in advance without notice.

If the accessories do not tally with the actual package, please take the actual package as a criterion.

Copyright

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All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, manual or otherwise, without the prior written permission of the manufacturer.

Precautions

General precautions

- Do not use or store the product in dusty, dirty, or sandy areas, as its components may be damaged.
- Do not store the product in a hot environment. High temperatures can shorten the life of electronic devices, damage batteries and warp or melt certain plastics.
- Do not store the product in cold areas. When the product warms up to its normal temperature, moisture can form inside, which may damage the electronic circuits.
- Do not attempt to open the casing or attempt your own repairs. High-voltage internal components create the risk of electric shock when exposed.
- Do not drop or knock the product. Rough handling may damage the internal components.
- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the product. Wipe the product with a slightly damp soft cloth.
- Do not fire the white LED light while it is too close to the subject's eyes. Intense light from the flash can cause eye damage if it is fired too close to the eyes. When using the white LED light, the camera should be at least one meter from the eyes of the subject.
- Do not open battery cover while an image is being recorded. Doing so will not only make storage of the current image impossible, it can also corrupt other image data already stored in file.
- If the product or any of its accessories are not working properly, take them to your nearest qualified service center. The personnel there will assist you and if necessary, arrange for the product to be repaired.

- Test for proper operation before using the camera.

Notes on the LCD Screen

Be very careful to ensure the fluid contained in the LCD screen does not escape if the screen becomes cracked or damaged. If this occurs, follow these steps:

- If the fluids make contact with skin, wipe it with a clean cloth then rinse with a large amount of water.
- If the fluid makes contact with eyes, wash eyes with clean water for at least 15 minutes and go to the hospital as soon as possible.
- If the fluid is swallowed, first rinse mouth with water, then drink a large amount of water and induce vomiting. Go to the hospital as soon as possible.

Operation conditions

- This camera is designed for use in temperatures ranging from 0°C to 40°C (32°F to 104°F).
- Do not use or keep the camera in the following areas:
 - In areas subject to direct sunlight
 - In areas subject to high humidity or dust
 - Near air conditioners, heaters, or other areas subject to temperature extremes
 - Inside of a closed vehicle, especially one parked in the sun.
 - In areas subject to strong vibration

Power supply

- Use only the type of battery that came with your camera. Using any other type of battery may damage the equipment and invalidate the warranty.

- Ensure the battery is inserted correctly. Inserting the battery incorrectly can cause damage to the product and possibly start a fire.
- Remove the battery to avoid the fluid leakage if the camera is not going to be used for a long time.
- If the battery is crushed or damaged, remove it immediately to avoid the battery fluid leakage and abnormal expansion.

Before You Start

Take some test shots before performing a formal recording.

Before taking pictures with this DV camera in any important occasion (such as a wedding ceremony or an overseas trip), do test the DV camera beforehand to ensure that it functions properly. Any additional loss caused by the malfunction of this product (such as costs of photography or any loss of benefit generated by the photography) is not the responsibility of the manufacturer and no compensation will be given for it.

Copyright information

Take care to observe "No Photography" notices in certain locations. In these cases, you cannot record any live performance, improvisation or exhibits, even for personal purposes. Any transfer of pictures or memory card data must be conducted under the constraints of copyright law.

1 Introducing the camera

Read this section to learn about the features and functions of the video camera. This chapter also covers system requirements, package contents, and descriptions of the hardware components.

1.1 System requirements

The video camera requires a PC with the following specifications:

- Windows® 7 / Vista / XP operating system
- Intel® / AMD Dual-Core CPU or higher
- At least 1 GB of RAM or higher
- At least DirectX 9 video card, DirectX 10 is recommended
- Standard USB 1.1 port or higher
- At least 2GB or greater available hard disk

- **Note:** A USB 1.1 port will enable you to transfer files to and from your host PC, but transfer speeds will be much faster with a USB 2.0 port.

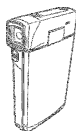
1.2 Features

The video camera offers a variety of features and functions including:

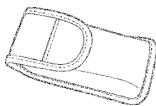
- Full HD Digital camcorder
- Digital camera (max. 12 Megapixels)
- HDMI audio-video output
- Max. 4X digital zoom
- Mass storage device
- 3" TFT LCD Touch Display (16:9)

1.3 Unpacking the video camera

The following items should be present in the package. If any item is missing or appears damaged, contact your dealer immediately.



Video camera



Pouch



USB & AV cable



Power Cord



Li-ion battery



**Battery
charger**



Strap



User manual



**CD-ROM
(Application software)**

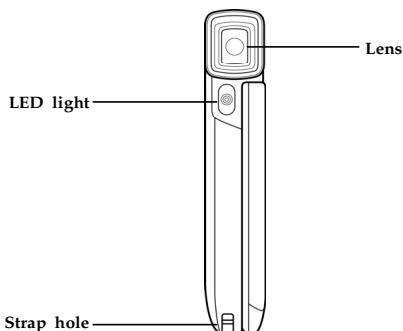


**HDMI cable
(Optional)**

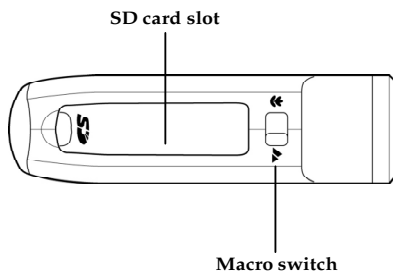
1.4 About the camera

Refer to the following illustrations to familiarize yourself with the buttons and controls of this video camera.

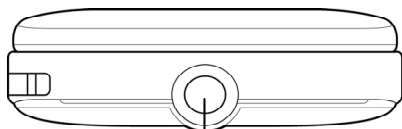
1.4.1 Front view



1.4.2 Top view

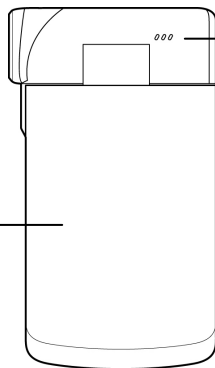


1.4.3 Bottom view



Tripod mount

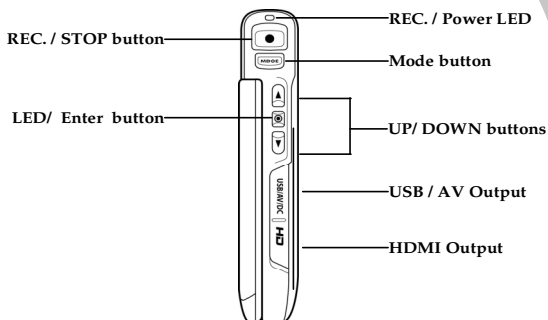
1.4.4 Right view



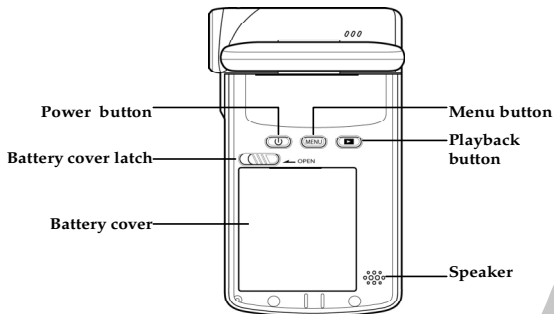
Microphone

LCD touch
screen cover

1.4.5 Back view

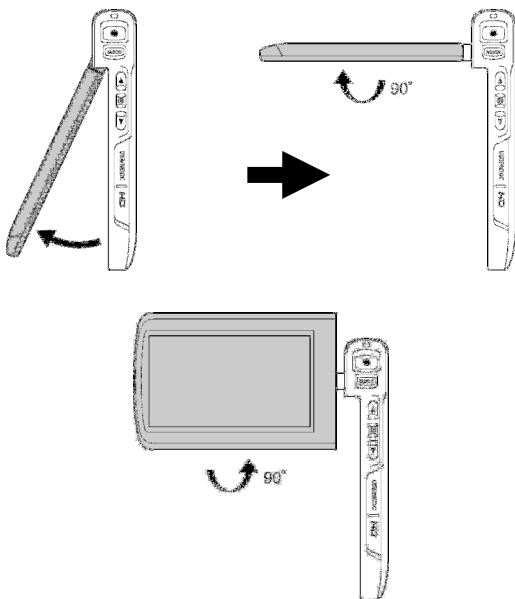


1.4.6 LCD Panel











1.4.7 Adjusting the LCD display

Flip and twist the LCD screen as shown while capturing a still image or recording a video clip.



See the table below for a description of each button's function.

Button	Name	Function
	Power button	Press to turn power on/off.
	Menu button	Press to display main OSD menus.
	Mode button	Use to toggle Movie , Photo , and SET modes.
	Up/Down buttons	<ul style="list-style-type: none"> ● In Movie and Photo modes, press to zoom in and out. ● In Movie Playback mode: <ol style="list-style-type: none"> 1. Press the Up/Down buttons to browse stored movies. 2. While playing a movie, press the Up/Down buttons to rewind / fast forward the movie. 3. In the thumbnail mode, press the Up/Down buttons to select the video clip and then press the ENTER button to show the video clip. ● In Photo Playback mode: <ol style="list-style-type: none"> 1. Press the Up/Down buttons to browse stored images. 2. In the thumbnail mode, press the up and down to select the thumbnail images and then press the ENTER button to view the

		<p>image in full screen mode.</p> <p>3.</p> <ul style="list-style-type: none"> ● In SET mode, press Up/Down buttons to highlight menu items, and the ENTER button to select.
	<p>REC. / STOP button</p>	<ul style="list-style-type: none"> ● In Movie mode, press to record video clip. ● In Movie Playback mode, press to pause the video playback. Press the REC. / STOP button again to resume video playback. ● In Photo mode, press to take a photo.
	<p>Macro switch</p>	<p>Move the switch to the  position to enable Macro mode.</p>
	<p>Playback button</p>	<p>In Movie and Photo mode, press to enter playback mode.</p>

1.4.8 About the LEDs

The following table describes the camera LEDs:

LED	Color	Definition
Power / Rec.	Green	Power-on
	Red Blinking	Recording
	Red	Camera busy
	Green Blinking	Self-timer is activated
	Green Blinking Rapidly	2 seconds self-timer remaining.
Self-timer	Green Blinking	Self-timer is activated.
	Green Blinking Rapidly	2 seconds self-timer remaining.

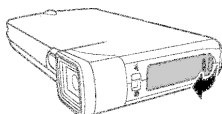
2 Getting started

Read this section to learn how to start using the video camera. This section covers basic functions such as switching on, inserting the battery and memory cards, and configuring preliminary settings. See later chapters for advanced functions.

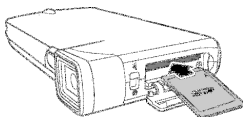
2.1 Inserting an SD card

An SD card can be installed in the video camera to provide additional storage space for still images, video clips, or other files.

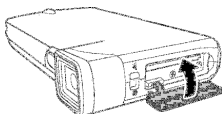
1. Open the SD card compartment cover.



2. Insert the SD card as shown. Make sure the contacts are facing downwards.



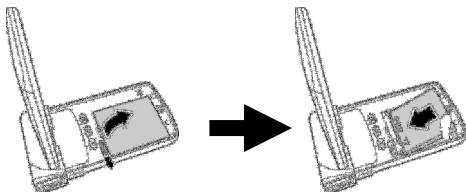
3. Press down the SD card compartment cover then inwards to close it.



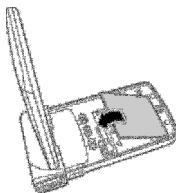
2.2 Inserting the batteries

This video camera is designed for use with a rechargeable Li-Ion battery. Only use the batteries supplied or similar batteries recommended by the manufacturer or your dealer.

1. Open the battery compartment cover and insert the batteries as shown.



2. Close the battery compartment cover.

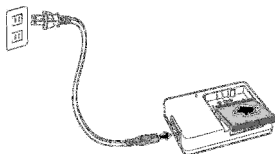


- **Note:** Installing the battery incorrectly could cause damage to the camera and possibly start a fire.

2.3 Charging the battery

You can charge the battery with the charging unit provided. Follow the below steps to charge your battery.

3. Insert the Li-ion battery into the charging bay. Connect one end of the power cord to the charging unit and then plug the other end to the wall outlet as shown.
4. The red LED will light up for proper charging.
5. After full charge, the LED turns to green.
6. It takes about 120 minutes to achieve full charge. Actual charging time depends on current battery capacity and charging conditions.



- **Note:** You may also charge the battery by connecting the video camera to a computer with the USB cable provided. When the video camera is turned off, connecting to PC starts charging. When the video camera is powered on, connecting it to PC goes to USB mode. It takes about 180 minutes to achieve full charge.

2.4 Turning on the video camera

Press and hold the power button or flip open/close the LCD touch screen to turn the video camera on/off.

2.5 Changing modes

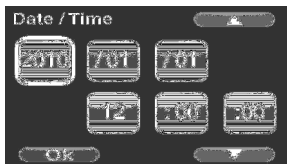
The video camera can operate in three modes, **Movie**, **Photo**, and **SET**. Press the **Mode** button to toggle different modes.



2.6 Before you start

Before you start using the video camera, some basic settings such as date and time, languages and beep function need to be configured.

2.6.1 Setting the date and time

1. Turn on the video camera, and press the **Mode** button to go to **SET** mode. Press the **Up/ Down** buttons or tap the screen to highlight **Date / Time**. Press the **ENTER** button or tap the screen to enter the **Date/Time** menu.
2. Tap the screen or press the **REC. / STOP** button to select a field.



3. Adjust each value by pressing the **Up/ Down** buttons or tap  / .
4. Press the **ENTER** button or tap **Ok** to save your changes and leave the Date/Time menu.

2.6.2 Setting the language

1. Turn on the video camera, and press the **Mode** button to go to **SET** mode. Press the **Up/ Down** buttons or tap the screen to highlight or tap the screen to highlight **Language**. Press the **ENTER** button or tap the screen to enter the **Language** menu.



2. Press the **Up/ Down** buttons or tap the screen to select the following language options: **English, German, French, Italian, Spanish, Portuguese, Dutch, Simplified Chinese, Traditional Chinese, Korean, Turkish, Japanese, Russian, and Arabic**. Tap **▲** / **▼** to go to the previous/next page. After the language is selected, press the **ENTER** button or tap **Ok** confirm.

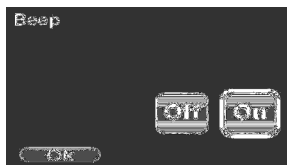


2.6.3 Setting the beep

1. Turn on the video camera, and press the **Mode** button to go to **SET** mode. Press the **ENTER** button or tap the screen to enter the **Beep** menu.



2. Press the **Up/Down** buttons or tap the screen to select **Off** or **On** options. Press the **ENTER** button or tap **Ok** to confirm.

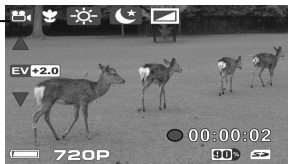


2.7 Shoot/Playback video

2.7.1 Shooting a video clip

1. Turn on the video camera and it starts in **Movie** mode.

Movie mode






2. Use the LCD screen to frame the video.
3. Press the **REC. / STOP** button to start recording.
4. Press the **REC. / STOP** button again to stop recording.
5. The video clip is automatically saved with a unique file name.

Notes:

1. The maximum length of each video recording file is 3.66 GB. When the maximum length is reached, the recording will automatically be saved as separate files.

3. The LCD preview and the ratio of a still-image capture can vary depending on the different video resolution settings. See the following table:





Video resolution	Preview	Taking pictures (3M, 5M, 12M)
1080P 720P WVGA	16:9 ratio 	4:3 ratio 
	4:3 ratio 	
QVGA		

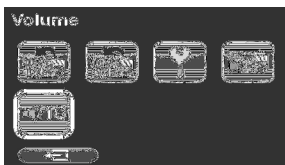
2.7.2 Playing the video clip

1. In **Movie** mode, press the **Playback** button and the most recent file displays on the LCD screen.

Movie playback
mode indicator



2. Press the **Up/Down** buttons or tap  /  to browse the video clips. Press the **ENTER** button or tap the screen to play back the video clip.
3. To pause while playing back the video clip, press the **REC. / STOP** button.
4. When viewing the video clip, press **MENU** button to display the **Volume** option, and then use the **Up/Down** buttons or tap  /  to adjust the volume.

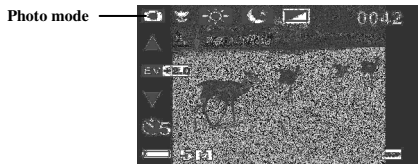


5. Press **Up/Down** buttons to fast rewind /forward.
6. Press the **ENTER** button to stop playing.
7. Press the **Playback** button again to return to **Movie** mode.

2.8 Taking/viewing pictures

2.8.1 Taking a still picture

1. Turn on the camera and move the mode dial to **Photo** mode.

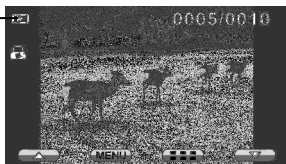




2. Use the LCD screen to frame the picture.
3. Press the **REC. / STOP** button to capture the image.
4. The picture is automatically saved with a unique file name.

2.8.2 Viewing images

1. In **Photo** mode, press the **Playback** button and the most recent image displays on the LCD screen.

Playback mode

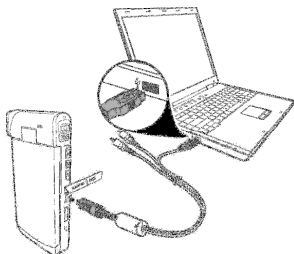


2. Press the **Up/Down** buttons or tap  /  to browse the images.
3. In thumbnail mode, press the **ENTER** button or tap **Ok** to view the image in full screen mode.
4. Press the **Playback** button again to return to **Photo** mode.

2.9 Connecting to a computer

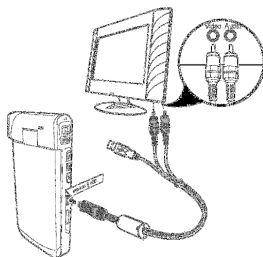
Read this section to learn how to transfer files to a PC, show the video clips or photos on PC.

Connect the video camera to a computer with the USB cable provided.



2.10 Connecting to a standard TV

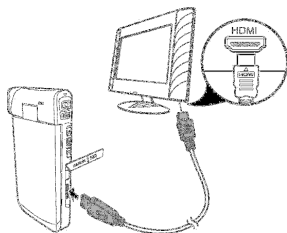
Connect the video camera to a standard TV as shown with the AV cable provided.



2.11 Connecting to an HDTV

Read this section to learn how to show the video clips or photos on an HDTV. Connecting to an HDTV offers the high resolution for displaying the video clips or photos.

Connect the video camera to an HDTV as shown with an HDMI cable.



- **Notes:**
 1. Photo capturing and movie recording are not supported when connected to an HDTV and TV.
 2. When connected to HDTV and TV, go to Playback mode and press the REC. key to view video clips or photos in thumbnails.

3 Using the camera

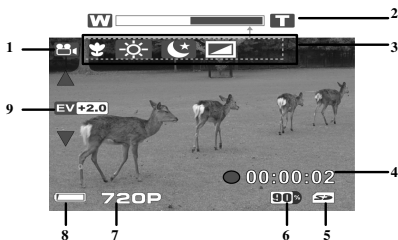
Read this section to learn how to use the camera.

3.1 Movie mode

Use this mode to capture video clips and store them in internal memory or on an SD card.

3.1.1 Movie mode













Use the following picture to familiarize yourself with the **Movie** mode icons and symbols.



Movie mode:


See the table below for a description of each icon and symbol.

1		Movie mode indicator
2		Zoom indicator
3		Macro indicator

		White balance indicator
		Night mode indicator
		Effect indicator
4		Recorded time indicator
5		Memory status indicator:  : indicates an SD card is inserted and the available storage capacity of the SD card  : indicates no inserted SD card and the available internal memory
6		Remaining memory capacity
7	720P	Resolution indicator
8		Battery indicator
9	  	EV compensation indicator

3.1.2 Using the macro function

This function can capture subjects close to the lens. In macro mode, subjects can be as close as 20-21 cm.

While in **Photo** mode, move the **Macro** switch on the side of the video camera to activate macro function, and an icon  displays on the LCD screen.

Move the macro switch again to return to normal mode.

3.1.3 Using the zoom function

The camera is equipped with 4x digital zoom.

Press the **Up** button to get closer to a subject.

Press the **Down** button to move away from a subject.

- **Note:** 1080p and QVGA do not support zoom function.

3.1.4 Using the LED light

Use the LED light to illuminate subjects in dark environments.

Press the **LED** button to choose from the following lighting options:
Off and **On** modes.

3.1.5 Quick access controls

You can also make adjustments to exposure and lighting settings by tapping the LCD touch screen.

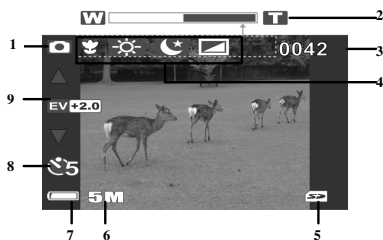
In **Movie** modes, tap ▲ / ▼ on screen to adjust the EV compensation setting.

3.2 Photo mode

Use **Photo** mode to capture still pictures and store them in the internal memory or on an SD card.








3.2.1 Photo mode icons

Use the following picture to familiarize yourself with the **Photo** mode icons and symbols.



See the table below for a description of each icon and symbol.

1		Photo mode indicator
2		Zoom indicator
3		Remaining number of photos
4		Macro indicator
		White balance indicator
		Night mode indicator
		Effect indicator

5		Memory status indicator:  : indicates an SD card is inserted and the available storage capacity of the SD card  : indicates no inserted SD card and the available internal memory
6		File size indicator
7		Battery indicator
8		Self timer indicator
9		EV compensation indicator

3.2.2 Using the macro function

See section 3.1.2 “Using the macro function”.

3.2.3 Using the zoom function

See section 3.1.3 “Using the zoom function”.

3.2.4 Using the LED light

See section 3.1.4 “Using the LED light”.

3.2.5 Quick access controls

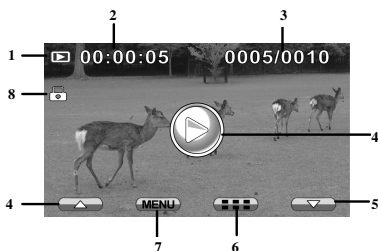
See section 3.1.5 “Quick access controls”.

3.3 Movie Playback mode

Use **Movie Playback** mode to review all the movie files stored in the video camera.




3.3.1 Movie Playback mode icons

Refer to the following picture to familiarize yourself with the **Movie Playback** mode icons and symbols.



See the table below for a description of each icon and symbol.

1		Movie playback mode indicator
2	00:00:05	The length of every video clip
3	0005/0010	Displays the number of current movie / total number of recorded video clips
4		Playback icon. Tap to start playing the video clip.
5		Up/Down icons. Tap to go to the previous/next video clips.

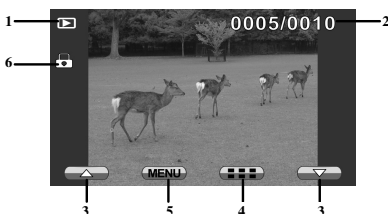
6		Thumbnail icon. Tap to view all video clips in thumbnails.
7		MENU icon. Tap to enter movie playback menu.
8		File protect indicator

3.4 Photo Playback mode







Use **Photo Playback** mode to review all the image files stored in the video camera.

3.4.1 Photo Playback mode icons


Refer to the following picture to familiarize yourself with the **Photo Playback** mode icons and symbols.



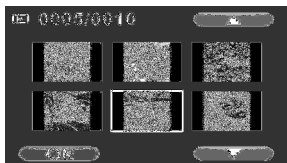
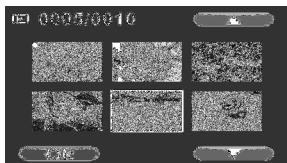
See the table below for a description of each icon and symbol.




1		Playback mode indicator
2		Displays the number of current image / the total number of saved images
3		Tap to view the previous/next image
6		Thumbnail icon. Tap to view all pictures in thumbnails.
7		MENU icon. Tap to enter photo playback menu.
8		File protect indicator

3.5 Thumbnail mode

When in **Photo Playback** or **Movie Playback** modes, tap  on screen to show images as thumbnails.

1. Turn on the video camera and make sure it is in **Photo Playback** or **Movie Playback** mode.
2. The most recent image /video clip displays on the screen. Press the zoom button left to view **six** thumbnail images /video clips on the LCD screen.



3. Press the **Up/Down** buttons or tap the screen to highlight an image or a video clip. Tap  /  to view the previous or next page.
4. Press the **ENTER** button or tap **Ok** to view the image or playback the video clip in full screen.
5. Tap  again to return to thumbnail view.

3.6 USB mode

You can use USB mode to connect to a host PC.

When connected to a host PC, the video camera is shown as a removable drive in Windows Explorer.

4 Using the menus

Read this section to learn how to configure the camera settings and use the advanced features.

4.1 Movie menu


When in **Movie** mode, press the **MENU** button to show the **Movie** options menu.

4.1.1. White balance

Use this option to correct color difference for different lighting conditions. When white balance is set to **Auto**, the video camera automatically compensates for different lighting conditions.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **MENU** button to display the menu options.
2. Tap the screen to highlight the **White Balance** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **Auto**, **Sunny**, **Cloudy**, **Fluorescent**, or **Tungsten**. Press the **ENTER** button or tap **Ok** to confirm.

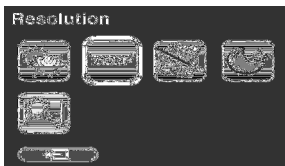



4. Press the **MENU** button again or tap  to exit the menu.

4.1.2. Video resolution

Use the resolution option to determine the resolution of the captured video. The larger screen size requires more memory storage space.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **MENU** button to display menu options.
2. Use the **Up/Down** buttons to highlight the **Resolution** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **1080P**, **720P**, **WVGA**, or **QVGA**. Press the **ENTER** button or tap **Ok** to confirm.



4. Press the **MENU** button again or tap  to exit the menu.

- **Notes:**
 1. The LCD displays the 16:9 ratio while setting the video resolution to WVGA, 720P or 1080P.
 2. The LCD displays the 4:3 ratio while setting the video resolution to QVGA. QVGA (120 fps) high frame rate mode, is suitable for shooting fast motion videos such as sport activities and traffic flow. The video plays back in silent slow motion video.


3. 1080p and QVGA mode do not support Digital Zoom function.

4.1.3. Color effect

The camera can capture standard color images, black and white images, or sepia tone to give an old-fashioned look.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **MENU** button to display the menu options.
2. Use the **Up/Down** buttons to highlight the **Effect** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **Color**, **B&W** or **Sepia**. Press the **ENTER** button or tap **Ok** to confirm.




4. Press the **MENU** button again or tap  to exit the menu.

4.1.4. Night mode

Use this function to shoot a better video clip quality in dark environments.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **MENU** button to display the menu options.
2. Use the **Up/Down** buttons to highlight the **Night Mode** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** or tap the screen to select **Off** or **On** option. Press the **ENTER** button or tap **Ok** to confirm.

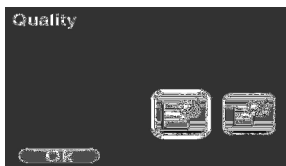



4. Press the **MENU** button again or tap  to exit the menu.

4.1.5. Video quality

Use this function to record video clips. Higher quality video requires more memory storage space and higher speed SD card

1. Turn the video camera on and ensure it is in **Movie** mode.
2. Press the **MENU** button to display the menu options.
3. Use the **Up/Down** buttons to highlight the **Quality** option. Press the **ENTER** button or tap the screen to display the submenu.
4. Use the **Up/Down** buttons or tap the screen to select **Fine** or **Normal** options. Press the **ENTER** button or tap **Ok** to confirm.



5. Press the **MENU** button again or tap  to exit the menu.



4.2 Movie playback menu

Use the playback menu to manage the files stored in the internal memory or on the SD card.

4.2.1 Delete

Use this function to delete files.


1. Turn the video camera on and ensure it is in **Movie** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Movie Playback** menu.
2. Use the **Up/Down** buttons or tap the screen to select **Delete One** or **Delete All** options.

If you select **Delete One**, the playback screen appears again. Use the **Up/Down** buttons or tap  /  to select the file you want to delete. Press the **ENTER** button or tap the **Delete** icon to delete the selected video clip.



If you select **Delete All**, use the **Up/Down** buttons or tap the **Delete** icon and press the **ENTER** button or tap **Ok** to delete all video clips.






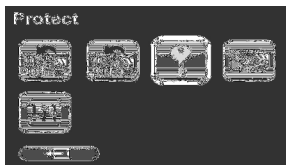
3. Press the **MENU** button again or tap  to exit the menu.


- **Note:** Once deleted, files cannot be recovered so make sure you have a backup before you delete. Files that have been protected will not be deleted. You have to unlock the files first before deleting them.


4.2.2 Protect

Use this function to lock files to prevent accidental deletion.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display **Movie Playback** menu.
2. Use the **Up/Down** buttons or tap the screen to select the **Protect** option. Then playback screen appears again.
3. Use the **Up/Down** buttons or tap  /  to select the file you want to protect.
4. Press the **ENTER** button or tap the **Protect** icon to confirm. A lock  icon is displayed to show that the file is protected.



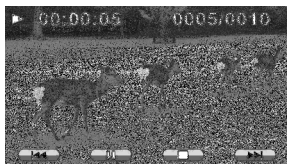
- **Note:** To unlock a file, repeat the above steps. The lock icon  disappears when the file is unlocked.

5. Press the **MENU** button again or tap  to exit the menu.





4.2.3 Autoplay


Use this function to continuously play all movie clips stored in the memory card.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Movie Playback** menu.
2. Use the **Up/Down** buttons or tap the screen to select the **Autoplay** option. The video camera starts continuous playing of movie clips.





3. Press the **REC. / STOP** button to pause the movie clip. Press the **REC. / STOP** button again to resume the playback. Press the **ENTER** button or tap the screen to stop and return to **Movie Playback** mode.

- **Note:** You may also use on-screen icons to rewind  / pause  / fast-forward  / stop  while playing the video clip.


4. Press the **MENU** button again or tap  to exit the menu.

4.2.4 Volume

Use this function to adjust the volume of the video clips in playback mode.

1. Turn the video camera on and ensure it is in **Movie** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Movie Playback** menu.
2. Use the **Up/Down** buttons highlight the **Volume** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap  /  to increase/decrease the volume. Press the **ENTER** button or tap **Ok** to confirm.



4. Press the **MENU** button again or tap  to exit the menu.

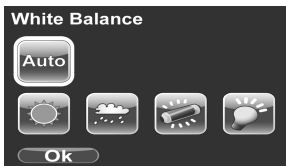
4.3 Photo menu


In **Photo** mode, press the **MENU** button to show the Photo Options menu.

4.3.1 White balance

Use this option to correct color difference due to lighting conditions.

1. Turn the video camera on and ensure it is in **Photo** mode. Press the **MENU** button to display the menu options.
2. Use the **Up/Down** buttons to highlight the **White Balance** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **Auto**, **Sunny**, **Cloudy**, **Fluorescent**, or **Tungsten**. Press the **ENTER** button or tap **Ok** to confirm.

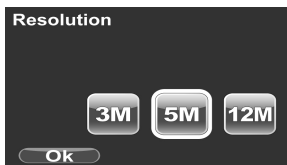



4. Press the **MENU** button again or tap  to exit the menu.

4.3.2 Resolution

Use this option to set the size of the captured image. Larger images contain more details and therefore use more memory space.

1. Turn the video camera on and ensure it is in **Photo** mode.
2. Press the **MENU** button to display the menu options.
3. Use the **Up/Down** buttons to highlight the **Resolution** option. Press the **ENTER** button or tap the screen to display the submenu.
4. Use the **Up/Down** buttons or tap the screen to select **3M**, **5M** or **12M**. Press the **ENTER** button or tap **Ok** to confirm.

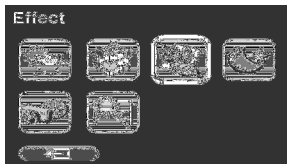



5. Press the **MENU** button again or tap  to exit the menu.

4.3.3 Color effect

The camera can capture standard color images, black and white images, or sepia tone to give an old-fashioned look.

1. Turn the video camera on and ensure it is in **Photo** mode.
2. Press the **MENU** button to display the menu options.
3. Use the **Up/Down** buttons to highlight the **Effect** option. Press the **ENTER** button or tap the screen to display the submenu.
4. Use the **Up/Down** buttons or tap the screen to select **Color**, **B & W**, or **Sepia**. Press the **ENTER** button or tap **Ok** to confirm.

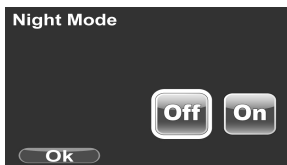



5. Press the **MENU** button again or tap  to exit the menu.

4.3.4 Night mode

Use this function to shoot a better photo clip quality in dark environments.

1. Turn the video camera on and ensure it is in **Photo** mode.
2. Press the **MENU** button to display the menu options.
3. Use the **Up/Down** buttons to highlight the **Night Mode** option. Press the **ENTER** button or tap the screen to display the submenu.
4. Use the **Up/Down** buttons or tap the screen to select **Off** or **On** option. Press the **ENTER** button or tap **Ok** to confirm.

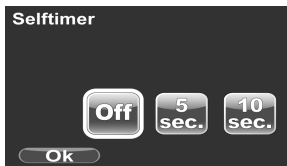



5. Press the **MENU** button again or tap  to exit the menu.

4.3.5 Selftimer

Use the self timer function to take a photo of yourself.

6. Turn the video camera on and ensure it is in **Photo** mode.
7. Press the **MENU** button to display the menu options.
8. Use the **Up/Down** buttons to highlight the **Selftimer** option. Press the **ENTER** button or tap the screen to display the submenu.
9. Use the **Up/Down** buttons or tap the screen to select **Off**, **5 seconds**, or **10 seconds** options. Press the **ENTER** button or tap **Ok** to confirm.

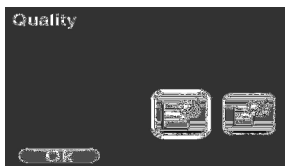



10. Press the **MENU** button again or tap  to exit the menu.

4.3.6 Photo quality

Use this set the photo quality. Higher quality pictures requires more memory storage space and higher speed SD card

1. Turn the video camera on and ensure it is in **Photo** mode.
2. Press the **MENU** button to display the menu options.
3. Use the **Up/Down** buttons to highlight the **Quality** option. Press the **ENTER** button or tap the screen to display the submenu.
4. Use the **Up/Down** buttons or tap the screen to select **Fine** or **Normal** options. Press the **ENTER** button or tap **Ok** to confirm.





5. Press the **MENU** button again or tap  to exit the menu.

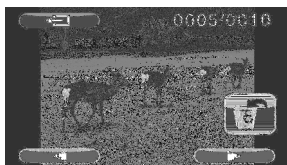
4.4 Photo playback menu

4.4.1 Delete

Use this function to delete files.


1. Turn the video camera on and ensure it is in **Photo** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Photo Playback** menu.
2. Use the **Up/Down** buttons or tap the screen to select **Delete One** or **Delete All** options.

If you select **Delete One**, the playback screen appears again. Use the **Up/Down** buttons or tap / to locate the file you want to delete. Press the **ENTER** button or tap the **Delete** icon to delete the selected image.



If you select **Delete All**, use the **Up/Down** buttons or tap the **Delete** icon and press the **ENTER** button or tap **Ok** to delete all images.






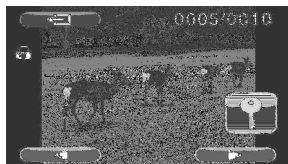
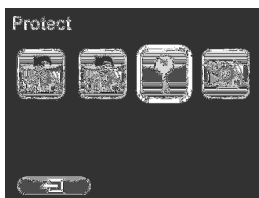
3. Press the **MENU** button again or tap  to exit the menu.


- **Note:** Once deleted, files cannot be recovered so make sure you have a backup before you delete. Files that have been protected will not be deleted. You have to unlock the files first before deleting them.


4.4.2 Protect

Use this function to protect files.

1. Turn the video camera on and ensure it is in **Photo** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Photo Playback** menu.
2. Use the **Up/Down** buttons or tap the screen to select the **Protect** option. Then playback screen appears again.
3. Use the **Up/Down** buttons or tap  /  to select the file you want to protect.
4. Press the **ENTER** button or tap the **Protect** icon to confirm. A lock  icon is displayed to show that the file is protected.



- **Note:** To unlock a file, repeat the above steps. The lock icon  disappears when the file is unlocked.


5. Press the **MENU** button again or tap  to exit the menu.

4.4.3 Slide show

The camera includes a slide show function, which displays each image in turn with a regular interval between pictures.

1. Turn the video camera on and ensure it is in **Photo** mode. Press the **Playback** button and then press the **MENU** button or tap the screen to display the **Photo Playback** menu.
2. Use the **Up/Down** buttons to select the **Autoplay** option and press the **ENTER** button or tap the screen to confirm. The images will be displayed automatically.



3. Press the **ENTER** button or tap the screen to stop the slideshow.
4. Press the **MENU** button again or tap  to exit the menu.

4.5 System menu

The system menu is used to configure miscellaneous camera functions.

4.5.1 Setting the beep

See section 2.6.3 "Setting the Beep".

4.5.2 Date/time

See section 2.6.1 "Setting the date and time"

4.5.3 Auto power off

Use this function to switch the camera off automatically after a period of inactivity for power saving.

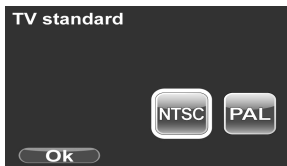
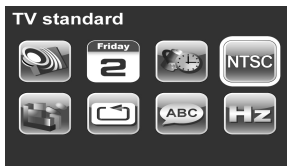
1. Turn on the video camera and press the **Mode** button to go to **SET** mode.
2. Use the **Up/Down** buttons or tap the screen to highlight the **Auto Power Off** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **Off**, **1 minute**, or **5 minutes**. Press the **ENTER** button or tap **Ok** to confirm.



4.5.4 TV standard

Use the TV option to set the TV system for the area.

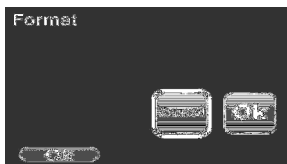
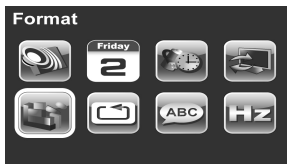
1. Turn on the video camera and press the **Mode** button to go to **SET** mode.
2. Use the **Up/Down** buttons to highlight the **TV standard** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **NTSC** or **PAL**, and press the **ENTER** button or tap **Ok** to confirm.



4.5.5 Format

Use this function to format the current storage media. This format action will delete everything on the media.

1. Turn on the video camera and press the **Mode** button to go to **SET** mode.
2. Use the **Up/Down** buttons to highlight the **Format** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons to select **Cancel**, or **SD**, and press the **ENTER** button or tap **Ok** to confirm.



4. The current media (memory card or internal memory) is formatted.

- **Note:** When no SD card is inserted, internal memory option will be displayed in the Format submenu.

4.5.6 Default

Use this option to reset all settings to the default settings.

1. Turn on the video camera and press the **Mode** button to go to **SET** mode.
2. Use the **Up/Down** buttons to highlight the **Default** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **Cancel** or **Ok**, and press the **ENTER** button or tap **Ok** to confirm.



4.5.7 Language

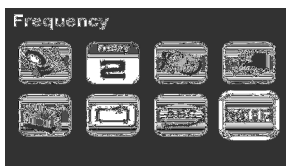
See section 2.6.2 "Setting the language".

4.5.8 Frequency

Use the Frequency option to set the frequency system for your area.

To set the frequency:

1. Turn on the video camera and switch to **SET** mode.
2. Use the **Up/Down** buttons or tap the screen to highlight the **Frequency** option. Press the **ENTER** button or tap the screen to display the submenu.
3. Use the **Up/Down** buttons or tap the screen to select **NTSC** or **PAL**. Press the **ENTER** button or tap **Ok** to confirm.



Appendix

Specifications

General	
Imaging sensor	1/3.2" CMOS 5.0 Megapixel sensor
Active pixels	5.0 Megapixel
Storage media	Built-in 128 MB flash memory (approx. 75 MB available for image storage) SD Card, SDHC compatible (up to SDHC 16GB Class 6)
Sensor sensitivity	Auto
Color effects	Color/B&W/Sepia
Lens	Fixed lens Wide: F/3.2, f=5.1mm
Focus range	Normal: 1.5m~infinity Macro: 20-21cm
Still image	Formats: JPEG (EXIF 2.2), DCF Resolution: 3M, 5M, 12M (Firmware interpolation)

General

Movie clips	Format: H.264 (AVI) Resolution: QVGA (120 fps), WVGA (60 fps), HD 720p (30 fps), HD 1080p (30 fps)
Zoom	Movie: Digital Zoom 4X (except 1080p and QVGA) Camera: Digital Zoom 4X
TFT Monitor	3" TFT LCD Touch Display (960 x 240 pixels) (16:9)
LED Light	< 1.0 m range
White balance	Auto/Sunny/Cloudy/Tungsten/Fluorescent
EV compensation	-2.0 EV~+2.0 EV
Self-timer	Off, 5, 10 seconds
PC interface	MSDC: USB 2.0 (high speed)
TV out format	NTSC/PAL / HDMI
Shutter speed	Still: 2 ~ 1/4000 second Video: 1/15 ~ 1/2000 second
Auto power off	Off, 1 min., 5 min.
Power supply	Li-ion Battery or DC-in via USB

General

Dimension	17 (W) x 107 (H) x 57 (D) mm
Weight	Approx. 97 ± 5 g (without batteries)

Troubleshooting

Problem	Possible Cause	Solution
Cannot turn on the video camera.	The batteries are not inserted correctly. The batteries have no power.	<ul style="list-style-type: none">• Insert the batteries correctly. (See 2.2 Inserting the batteries.)• Replace the batteries
The camera suddenly turns off.	The auto power off function was enabled. The camera is running out of battery power.	<ul style="list-style-type: none">• Turn the power on again.• Replace the batteries.
The captured image is not stored in memory.	Before the image is saved the power has been cut off.	When the battery indicator turns red, replace the batteries immediately.

Problem	Possible Cause	Solution
The camera turns off when capturing image using self-timer.	The camera is running out of battery power.	<ul style="list-style-type: none"> • Replace the batteries.
The image is out of focus.	The subject is beyond focus range.	<ul style="list-style-type: none"> • Please take a picture within the available focus range and choose normal or macro mode. (See 3.2.2 Using the macro function).
Memory card cannot be used.	<p>The memory card is protected.</p> <p>The memory card contains non-DCF images taken by other cameras.</p>	<ul style="list-style-type: none"> • Unlock the memory card. <p>Format the memory card. (See 4.5.5 Format.) Before formatting the card, ensure you back up the files.</p>

Problem	Possible Cause	Solution
All buttons are inactive.	Short circuit occurred when connecting the camera with other devices.	<ul style="list-style-type: none"> Remove the batteries from the camera and insert again.



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